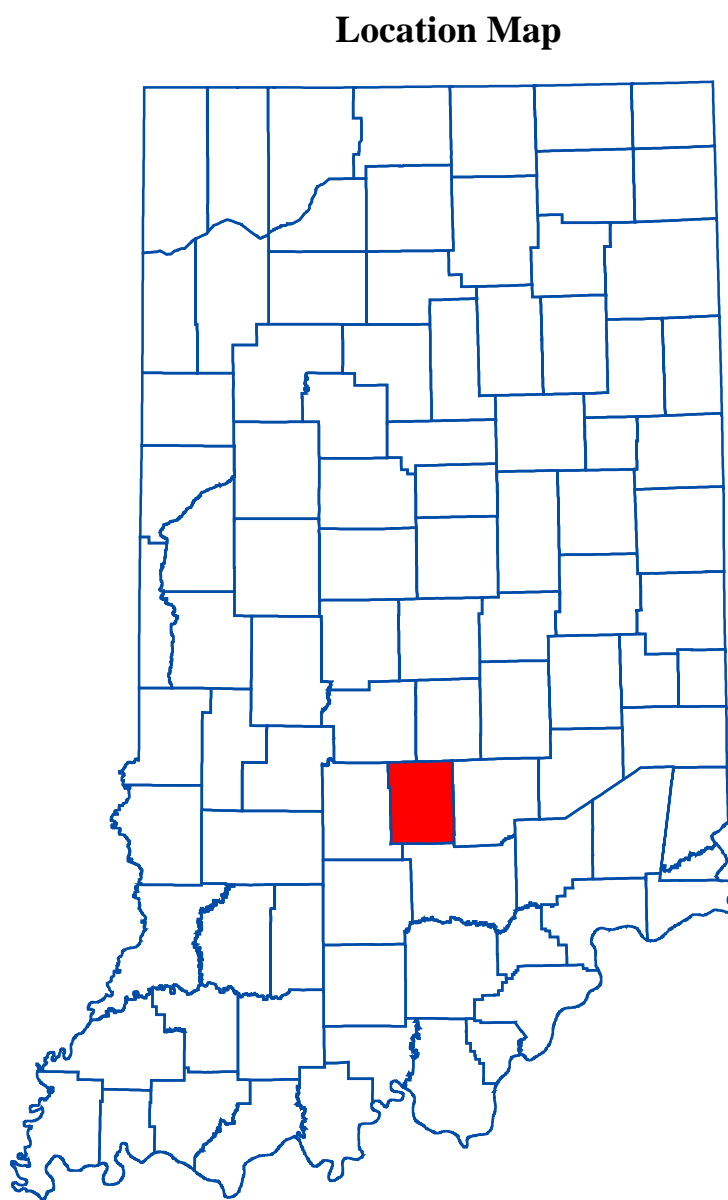
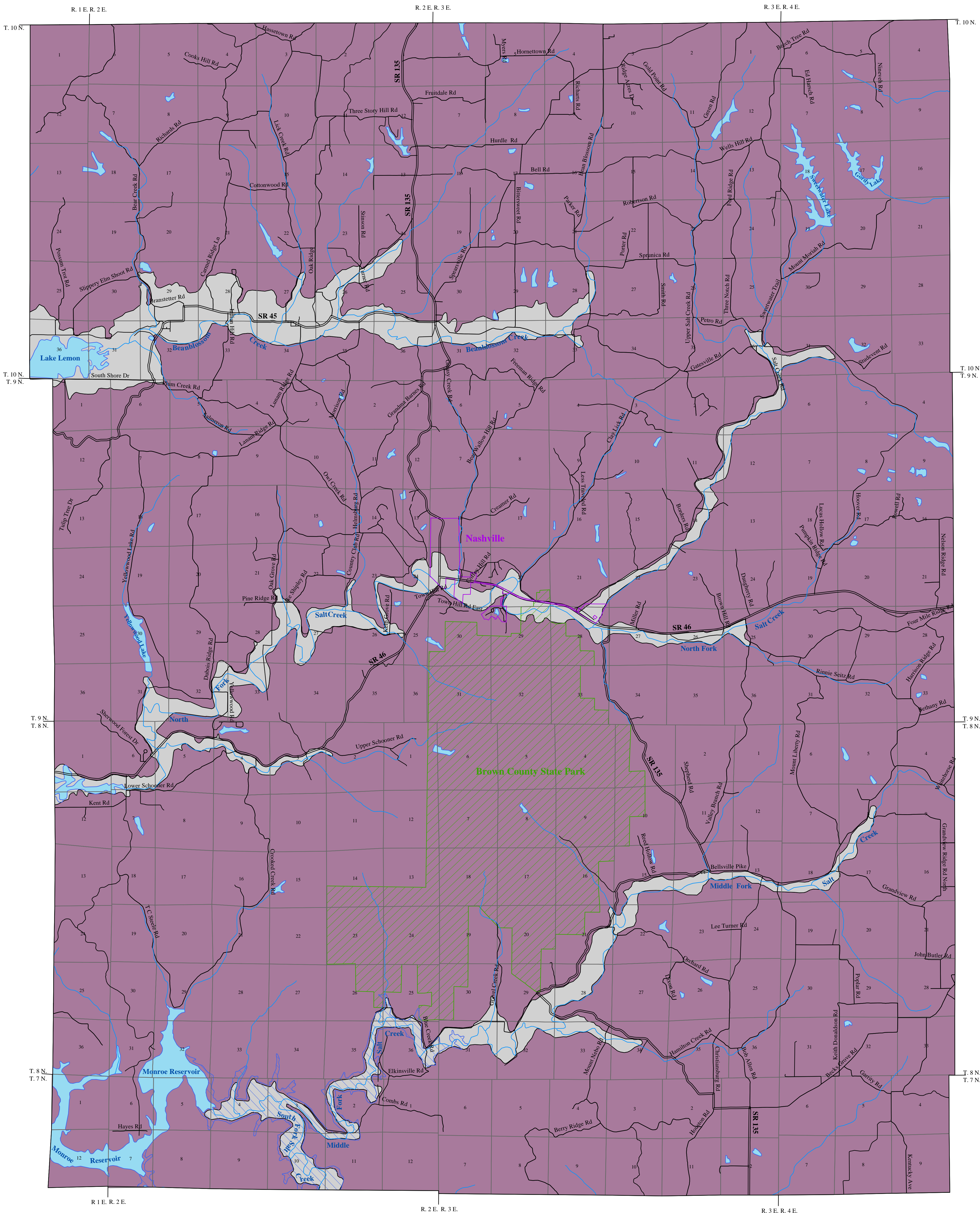
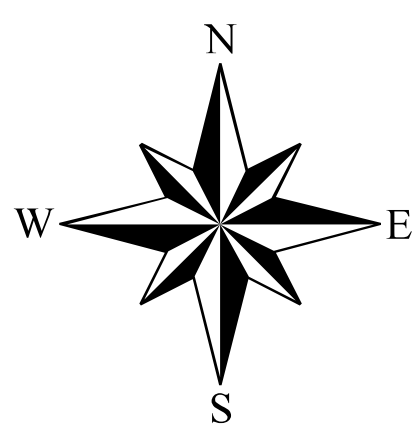
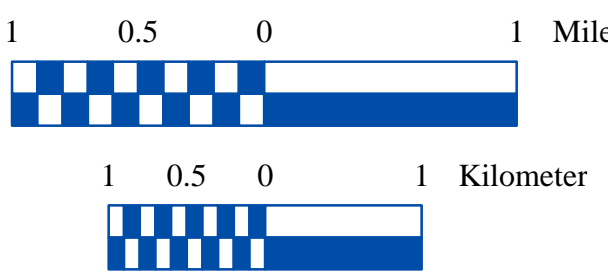


UNCONSOLIDATED AQUIFER SYSTEMS OF BROWN COUNTY, INDIANA



EXPLANATION

- County Road
- State Road & US Highway
- Stream
- Municipal Boundary
- Lake & River
- Land Subject to Inundation
- State Managed Property



Brown County Unconsolidated Aquifer Systems

The unconsolidated aquifer systems mapped for Brown County include the Alluvial, Lacustrine, and Backwater Deposits Aquifer System and the Dissected Till and Residuum Aquifer System. Boundaries between the systems are relatively well defined. Both systems have extremely limited potential for development of successful water wells. Drillers prefer completion of wells in the underlying bedrock aquifer system (Mississippian Borden Group). That too is quite limited, and many county residents prefer to tap into a public water supply system serving parts of the county.

Alluvial, Lacustrine, and Backwater Deposits Aquifer System

The Alluvial, Lacustrine and Backwater Deposits Aquifer System in Brown County is made up of heterogeneous bodies of alluvial, colluvial, and lacustrine materials within valley bottoms and along terraces of Bean Blossom Creek and Salt Creek. This aquifer system is an extremely limited resource in the county and the Division has no records for wells actually producing from these deposits. The potential for completion of a well in the unconsolidated deposits, however, does exist. Unconsolidated materials within the Alluvial, Lacustrine, and Backwater Deposits Aquifer System range from less than 5 feet to 50 feet thick.

Unconsolidated materials within the system include thin alluvial and colluvial deposits of Wisconsin and Holocene (Recent) age. Small remnants of pre-Wisconsin outwash are noted as terraces in the main valleys of Bean Blossom Creek and Salt Creek. Additionally, lacustrine deposits of Wisconsin and pre-Wisconsin age are noted only in the valley of Bean Blossom Creek. Discontinuous sand and gravel lenses, where present in this aquifer system, are expected to be less than 5 feet thick and may be confined within the fine-grained glaciolacustrine deposits, or may directly overlie bedrock.

The lacustrine deposits were formed in bodies of relatively stagnant lake water. The formation of these deposits can be attributed to larger river valleys, like the East Fork and West Fork White River, being choked with sand and gravel outwash materials carried by glacial meltwater that poured from the waning ice sheets. Thick deposits of this outwash dammed tributary streams, like Bean Blossom Creek and Salt Creek, thus creating lakes in which fine-grained glaciolacustrine deposits accumulated. Today, within the Bean Blossom valley bottoms and along some higher terraces, these deposits of silt and clay, sometimes called "slack water clay," mark the locations of former glacial lakes. The lacustrine deposits are often indicated on Quaternary geology maps and soil maps.

Dissected Till and Residuum Aquifer System

The Dissected Till and Residuum Aquifer System covers most of the county. It is an extremely limited aquifer resource, typified by very thin unconsolidated deposits overlying bedrock. Only in isolated portions of northern and eastern Brown County does the system include pre-Wisconsin glacial drift. And, this is limited to ridge tops, with most being eroded away over the last several thousand years. The rest of the aquifer system in the county is comprised of weathered bedrock residuum. The later Wisconsin glacial ice sheets stopped just north of the county line, thus depriving Brown County of potential aquifer materials common to counties farther north.

Unlike most counties where this aquifer system is present, Brown County has no known wells that produce from any unconsolidated materials. All domestic wells, for which the Division has records, produce from the underlying bedrock. However, it is possible that the bedrock aquifer system could be enhanced by the presence of sporadic sand and gravel materials in those limited areas of glacial drift on the ridge tops. Where only bedrock residuum is present, the chances of obtaining a successful drilled well in the unconsolidated deposits are practically zero. A few old dug wells may still be used, but yields would be very small.

South of Bean Blossom Creek the thickness of unconsolidated materials ranges from 2 to 20 feet. However, north of Bean Blossom Creek the unconsolidated deposits are somewhat thicker. In limited areas pre-Wisconsin drift occurs up to 50 feet thick on ridge tops. One well near the Morgan County line reportedly penetrated 85 feet of clay, mud, and gumbo before being completed in bedrock. Although the potential for completion of an unconsolidated well is somewhat better in those small areas of glacial drift, the overall chances for successful wells in this aquifer system are quite small.



This map was created from several existing shapefiles. Township and Range Lines of Indiana (line shapefile, 20020621), Land Survey Lines of Indiana (polygon shapefile, 20020621), and County Boundaries of Indiana (polygon shapefile, 20050621) were all from the Indiana Geological Survey and based on a 1:24,000 scale. City Areas in Southwestern Indiana (polygon shapefile, 1999) was from ESRI and based on a 1:100,000 scale. System1 and System2 are from the Indiana Department of Transportation (line shapefile, 2003) and based on a 1:24,000 scale. Managed Areas 96 (polygon shapefile, various dates) was from IDNR. Streams2 (line shapefile, 20000420) was from the Center for Advanced Applications in GIS at Purdue University. Unconsolidated Aquifer Systems coverage (Maier, 2003) was based on a 1:24,000 scale.

Map Use and Disclaimer Statement

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Unconsolidated Aquifer Systems of Brown County, Indiana

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May 2003